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THE AGRICULTURAL STUDENT

U. S. Department of Agriculture



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Dairy Issue --- November, 1911

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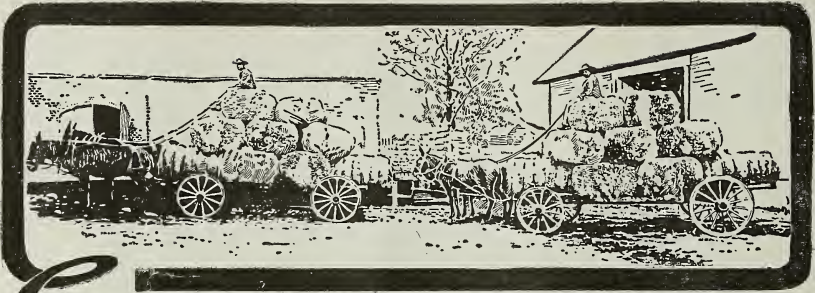
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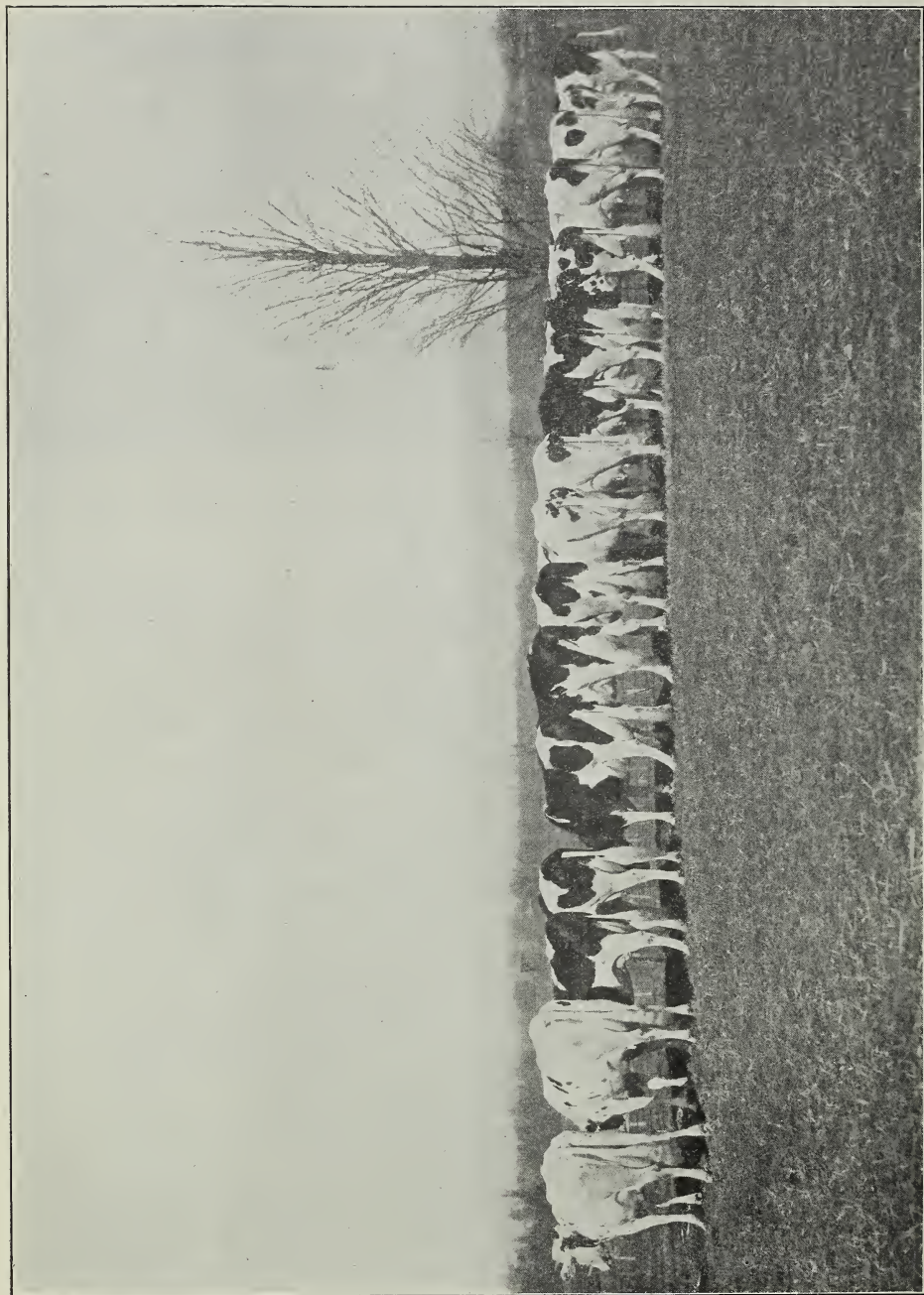
£3 Nassau Street, New York



“The fields between
Are dewy fresh, browsed by deep ud-
dered kine. —Tennyson.

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A STRING TO TIE TO.

Courtesy T. H. Russell.

THE AGRICULTURAL STUDENT

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What the Dairyman Must Do to Conserve Fertility

W. D. HOARD

Editor Hoard's Dairyman, Ex-Governor The State of Wisconsin

THERE is a wide spread yet mistaken notion that dairy farming is all sufficient to maintain the fertility of the soil. All that is necessary to refute this notion is to look over the old dairy districts of New England, New York and the Western Reserve in Ohio.

Wherever cheesemaking or milk shipping has prevailed for a long time there the farms will be found to be considerably run down in condition, clover much more difficult to grow than it was 40 or 50 years ago, drouths much more disastrous and the prices of land on a decline. All of these ill conditions may be directly traced to the depletion of original fertility. "How could this happen," says the unthinking farmer, "when cows have been steadily kept on these farms?"

In the first place let us understand that there is about six dollars worth of fertilizer in every 4,000 pounds of milk. This is found mainly in the casein or nitrogenous part of the milk. Four thousand pounds is about the average production per cow in the old dairy districts. If the butter fat, in which there is but little fertility, is extracted, and the skim milk fed to calves and pigs, about 80 per cent. of the original fertilizing value of the milk is retained.

Suppose a farmer has 30 cows. Multiply 450 by 30 and we have as a result,

\$144.00 worth of fertilizer left on the farm each year directly derived from the skim milk. If the farmer devotes the whole milk to city consumption, or to the condensory, or to cheesemaking, will he spend annually \$140.00 for nitrogen, phosphate and potash to make up this loss? Hardly ever. The consequence then is as we have seen in the old dairy districts where butter making is not followed and an abundance of young stock is reared. The farm lands have steadily declined in productive power, with a consequent decline in selling value. The trouble lay in the farmer not being clearly informed of what was going on in his soil and in not being alive also to the necessity of extra effort and expense on his part to put back that which he had taken out of his land.

Another thing has happened. These old lands have gradually lost their humus, the element that holds two very important things in fertility, nitrogen and moisture. Old farmers have noticed that these old farms have been growing lighter in color, drier, and "more feverish," so to speak. This was because of a loss of their humus. In addition they have grown acid, so much so that the growing of clover is becoming extra hazardous. What shall be done to correct this bad condition?

1. Let every farmer address himself at once to a study of his soil. Let him procure books on that subject, thus to awaken his thought and enrich his understanding. His mind, as well as his land, needs fertilizing. Farmers have been doing an immense amount of ignorant unthinking farming.

2. Set to work at once to use ground limestone or marl—not burned lime—on his lands. Do not be sparing of the expense here. Mix land plaster and raw ground phosphate with the manure in the stables at the rate of a pint or so combined, to the cow. Wherever manure accumulates in piles sprinkle these two materials frequently in the manure. Plow under in the fall the second crop of clover or the last crop of alfalfa. Before plowing spread broadcast 1000 pounds of raw ground phosphate to the acre. If a light dressing of manure is

added before plowing, it will help. This to increase the humus content in the land. Pursue this course of taking annually from the milk revenue, as much money as the fertilizer elements it contains are worth to replenish the loss.

3. Renew the humus as indicated; sweeten up these old sour lands. Plow from 8 to 10 or 12 inches deep. Face resolutely the proposition that it is our duty to so farm as to increase not decrease the fertility of our lands. Follow this course and in a few years these old half-wornout farms will blossom with luxuriant crops as they used to when the pioneer farmers first knew them.

Dairy farming, like all other farming, must not trust to itself alone for the conservation of fertility. It must be supplemented with intelligent thought and purpose.



“Little dun cow, ’tis so tranquil and sweet!

Are you light-hearted, I wonder?

What do you think about—something to eat?

On clover and grass do you ponder?”

—Thaxter.

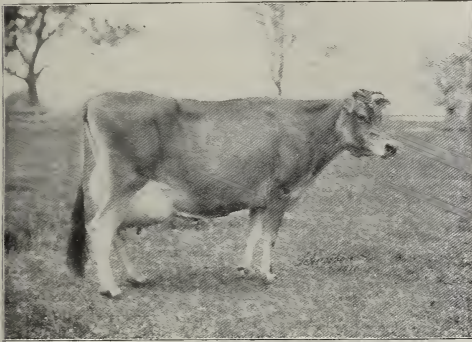
Starting a Herd of Profitable Dairy Cows

OSCAR ERF
Professor of Dairying

THE first and most important factor in successful dairying is the man himself. The same principle holds true here as in any other vocation. The dairyman must not only well understand the principles that underlie crop raising and crop preserving, but he must also understand the feeding of these crops economically, and the breeding of his animals. Thus will he be able to produce economically as well as market

grade, are more expensive than poor ones.

With the grade cow the principal revenue is from the milk; while a pure bred cow will often bring you more returns from the offspring than from the total income from the milk produced. In short, there is but one way to build up a really successful, permanent dairy herd and that is by means of pure bred animals.



LIKE BEGETS LIKE.

Lady Viola and Her Son, Noble of Oaklands.

a first class product. Scientific knowledge in this work is essential. It is evident from the reports sent to the Dairy Department from various herds that the man who practices dairying in the most scientific manner is the one who is successful.

Probably the first point that confronts the young man, just starting in the dairy business, is what kind of cattle to select, whether pure bred or **grade** stock. A poor pure bred animal is usually more unprofitable than a small producing grade, for the simple reason that there is more money invested in the pure bred animal. Good cows, it matters not whether they are pure bred or

It is better for the dairyman to select one breed and devote most of his time and energy to this one breed of cattle. This selection should be based, first, upon the product that he intends to market; second, his location with reference to the markets, and finally, his natural inclination or liking for a particular breed of cattle. While the last factor is quite important, yet the form in which it is most profitable to market the product should be the great governing factor. The several dairy breeds have different characteristics. For illustration, the average Jersey cow produces a smaller quantity of milk than the average Holstein cow. On the other

hand, the average Jersey cow produces a higher percentage of fat than the Holstein cow. For a wholesale milk trade, for delivering milk to condensaries or cheese factories, or under any conditions in which milk is pooled instead of being sold by the percentage of fat it contains, the Holstein-Friesian cow is undoubtedly the most profitable. On the other hand, the Jersey cow becomes more profitable where cream, butter or butter fat is sold. The Guernsey cow produces milk that is very high in color and quite rich in fat, giving a moderate quantity. This product is especially desirable for a high class retail milk trade.

After having decided upon the breed, it is essential to choose good animals of the breed selected. There are many poor producers to be weeded out of the pure bred herds of the various breeds. It is a difficult matter to secure the good producers, but it is usually money well invested to buy one or two of these animals in preference to a larger number of poorer ones.

There are two ways to start a herd. One is to rear good individuals and the other is to buy them. The latter is extremely expensive and is not within the power of the average young man. Furthermore, in buying animals even at a high price, there is a chance of importing into the herd various diseases. This, combined with the inexperience of one who is usually just starting in the business, offers small chances for success. It is a much better plan to start in with one or two good pure bred animals in connection with a number of good grades, which can be purchased at a reasonable price and from which the beginner can gain experience that will not cost as much as with pure bred animals. By gradually weeding out the grade animals and replacing them with pure

bred animals from the stock that he has been raising and with the occasional purchase of some good animal that can be secured at a reasonable cost, in eight or ten years a large herd of pure bred animals can be built up.

There are two methods of selecting the individual. First, by conformation, and second by performance or a record of production. The first method is relatively of small importance when compared with the second. It is well to maintain a standard of type and breed to this particular standard and the only way that this can be accomplished is by examining cows that have won prizes in show rings. However, the real value of the animal can be determined only by testing her and keeping a record of what she produces. There are many who discredit the test for production owing to the fact that now and then an animal that has made a phenomenal record in one year will not accomplish as much in succeeding years. It is also claimed by some that the offspring of these animals are not as good producers as the offspring of those chosen on the basis of good conformation.

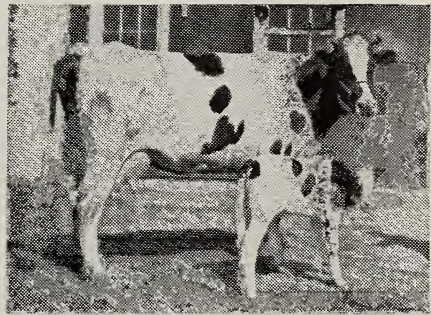
In looking over the reports of the registries of production of the various breeds we find that more than one-half of the animals that are entered came from dams and sires that were in the Advanced Registry. This is more remarkable when the short time since the advanced registry work has been inaugurated is taken into consideration, and goes to prove that in the future the great per cent. of the animals that are high in production will come from parentage in the registry of production. Some figures given by Mr. Harper, from his investigations, well prove this statement. From 168 cows in the State of New York, in the advanced registry, giving 700 pounds of butter fat, 123 or

72 per cent. come from advanced registry parents on both sides. This is an important reason for selecting bulls from the advanced registry. Of 172 cows having four or more daughters in the advanced registry, 122, or 71 per cent., have parents that have advanced registry records of their own.

The records of the sires is still more interesting. Of 251 sires with nine or more daughters in the advanced registry, 145, or 58 per cent. of them, came from sires and dams that had advanced registry records. Of 112 sires with 15 or more daughters, 75, or 67 per cent. of them, came from sires and dams having advanced registry records. Of 43 sires with 25 daughters in the advanced registry, 31, or 70 per cent., came from advanced registry parents. Of 14 sires with 50 or more daughters in the advanced registry, 12, or 80 per cent., came from parents that had records in the advanced registry.

This indicates clearly that if you wish to breed animals that are high producers, the chances for success are greater when those with high producing parents are chosen than when they are chosen by conformation.

It is very evident that in connection with this, good feeding must be practiced, for without good care, good housing and good feeding the herd cannot be a success.



Courtesy T. H. Russell.



“STARTING RIGHT.”

Courtesy Holstein-Friesian Association.

Some Points in Feeding Dairy Cows

O. C. CUNNINGHAM
Assistant Prof. of Dairying

THE dairy cow is as highly developed and delicate an organism as she is a hard-working one. When in full flow of milk she is expending as much energy as a horse at hard labor and she is expending it continuously, with no lay-off for Sunday or holidays. The dairy cow that is doing her best is working at a higher tension than is ever the case with any of our other farm animals. Because of these facts it is essential that she receive her food in ample quantities and in the form in which it can best be used by the kind of digestive tract with which nature has endowed her.

The dairy cow might be compared to the locomotive which is pulling a heavy train across the continent. It can not keep up the heavy strain to which it is subjected without a plentiful supply of fuel to furnish energy as well as the watchful care of the engineer to see that all is going right. Let the supply of fuel be diminished, or the care relaxed, and the great engine will not be able to keep up its constant speed. So with the dairy cow, any diminution in quantity or quality of the food supplying energy or relaxation of care on the part of the feeder will mean a diminution in production.

For some time feeds of all kinds have been high in price. This has made it necessary to use care and judgment in selecting those that will meet the requirements and yet be as cheap as possible. A mistake is made, however, when this desire to cheapen the ration causes it to be cut short or inferior feeds used. A tendency among farmers, especially those who are not making a specialty of dairying, is to slight

the grain ration. While the dairy cow is so constituted as to make use of large quantities of roughage, she must have concentrates as well to secure sufficient nutriment for profitable production.

It is a fact that fully one-half the food consumed by a well-fed cow is used for maintenance, that is, to maintain her body, so that only the last fifty per cent. of her ration is used for milk production. It is very evident that it is only this last fifty per cent. to which the dairyman may look for returns. It is equally evident that in just the proportion that this last fifty per cent. is reduced will the returns be reduced. If it is cut down one-half, the returns will be cut down one-half. Therefore, the greatest economy is found in furnishing a full ration.

What constitutes a full ration varies with different cows. Some have larger bodies and require more for maintenance. An idle cow, just as an idle horse, requires less food than a working one. The amount and quality of milk a cow gives influences the amount of food she requires. The same cow requires less food when giving less milk and the economical plan is to gauge the amount of feed by the amount of milk given. She may be given about all the roughage of good quality she will clean up and the grain ration increased so long as she shows a corresponding increase in milk production. These increases should be made gradually and with care. Under no circumstances should a cow be given more than she will clean up readily. This makes it necessary to give close attention to each individual. There is another reason why attention must be given to individuals for the

greatest results. Different cows have preferences for different foods just as different persons do, and while one will do well on one ration, another will do better on something else.

In selecting feeds for the dairy cow those should be chosen which furnish a balanced ration. By a balanced ration we mean one that contains the proper proportion of the different nutrients needed by the animal. These nutrients are protein, carbohydrates, and fat. It is not our purpose here to go into the

that a ration made up of feeds taken from the second list alone would be deficient in protein and would not be a balanced ration. A satisfactory ration could be made from a combination of feeds from the two lists, the ones used depending on availability and cost.

The importance of clover or alfalfa hay cannot be too strongly emphasized. The protein of the ration can be supplied more cheaply from roughage grown on the farm than in any other way. Alfalfa is just as satisfactory a



“SUPPLY SUCCULENCE BY MEANS OF CORN SILAGE.”

details of calculating a balanced ration. The nutrient in which the feeds ordinarily found on the farm are most apt to be lacking, is in protein. A sufficient supply of protein is very essential for milk production. Therefore, the farmer needs to give special attention to securing feeds rich in protein for his dairy ration. Some of the common ones rich in protein are clover, alfalfa, cowpeas, oil meal, cotton seed meal, wheat bran, gluten feed and dried brewer's grain. Some of those lacking in protein are timothy, oat straw, corn silage, corn, corn stover, hominy chops. It is clear

source of protein as wheat bran. It should always be remembered, too, that good roughage, such as clover, alfalfa and corn silage, reduce the quantity of concentrates required in the ration.

Timothy hay is never satisfactory in the dairy ration. It is less digestible than clover or alfalfa, does not contain the required amount of protein, and is not as palatable. The last item mentioned, palatability, is important both in roughage and concentrates. The feed which a cow relishes will be consumed in greater quantities, will be more completely digested and used to better advantage in the body.

Another thing which should not be overlooked is variety. A system of feeding which gives a cow variety in her ration will give better results than one which does not furnish it, even though the latter may seem to be just as good so far as amount and proportion of nutrients are concerned.

An important consideration in the dairy cow's ration is succulence. She demands something juicy and similar to the pasture grass which is her natural food. In some sections of Ohio blue grass or other pasture may be depended upon to furnish the succulent part of the ration for at least a part of the summer. But even where it is available it will become parched before the summer is over, and in seasons like the one just past, this will happen very early. The most satisfactory way for Ohio farmers to supply this needed succulence in late summer and during the rest of the year when grass is not available is by depending on corn silage. The corn plant will yield a greater quantity of feed per acre than any other that may be used for the purpose of furnishing succulence. Enough should be put up in the fall to last through the winter and to help out during the drouths of the following summer. Those who use silage for the first time will be agreeably surprised in regard to its influence in keeping up the flow of milk dur-

ing these periods. Thousands of dollars would have been added to the revenue of Ohio farmers the past summer had they had a supply of corn silage to keep up the milk flow when their pastures had failed. No farmer who has ten or more dairy cows can afford to be without a silo. By keeping up the flow of milk during the winter and the dry spells of summer it will help him to get returns from high priced concentrates. Because of the corn in the silage it will also reduce the amount of concentrates required.

In conclusion, let us summarize the points which will help to counteract the high cost of feeds:

1. Give the cow a full ration so that she may produce at full capacity, for only then is she producing most economically.
2. Secure the cheapest concentrates that are satisfactory in other respects.
3. Feed a balanced ration.
4. See that the ration is made up of foods that are palatable and furnish variety.
5. Use roughage of good quality, such as clover, alfalfa and corn silage, which will affect a saving in high priced concentrates.
6. Last, but not least important, supply succulence in the ration by means of corn silage at all times when pasture is not plentiful.

"Happy the man whose wish and care
A few paternal acres found,
Content to breath his native air
In his own ground.

Whose herds with milk, whose fields
with bread,
Whose flocks supply him with attire,
Whose trees in summer yield him shade,
In winter, fire." —Pope.

The Kerry and Dexter Breeds of Cattle

C. S. PLUMB

Prof. of Animal Husbandry, Sec'y-Treas. The American Kerry and Dexter Club

VISITORS to Ireland have been accustomed to see in that country, especially in the Southern or South-westerly parts, a rather small type of cattle, usually black of color. These represent two breeds, although one, the Dexter, is probably an off-shoot of the other, which is the Kerry. The latter breed has been known on the island

occasionally occurs. This is one of the very smallest breeds of cattle, and at the National Dairy Show this year (1911), most of the Dexters stood 36 to 40 inches high. The bulls should not weigh over 900 pounds and the cows not over 800, although breeders prefer much less weight. The Dexter is squarer in its parts than the Kerry, but



KERRY BULL, NAPOLEON,
First Prize New York State Fair, 1911.

Courtesy American Kerry and Dexter Cattle Club.

since very early historical time. It is black in color, is small to medium in size, and is especially suited to dairy purposes. The bulls, at maturity, weigh 1000 lbs. or less. A cow owned by the Ohio State University, imported from Ireland, weighs about 850 pounds. This breed has gone through much hard usage and deprivation in Ireland, and is the mainstay of the poor people of that country in milk production. The Dexter is usually black in color, but red

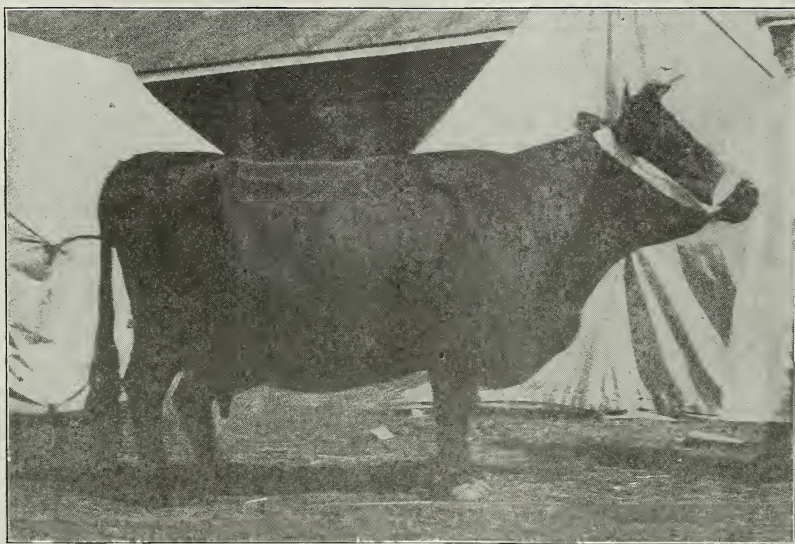
no doubt as bred in America, these little cattle will take on dairy character very strongly.

These two breeds have been recognized a long time, and in Ireland the Royal Dublin Society maintains a herd book, while in England there is an English Kerry and Dexter Cattle Society. The Irish Society has published fourteen small herd books, and the English twelve. In these books the Kerries are registered separately from the Dexter.

The American Kerry and Dexter Cattle Club was organized this year (1911) with G. M. Carnochan, of New City, New York, as President, and the author of this article as the Secretary.

These two breeds have been known in America for some considerable time, but only recently has an active interest in them been manifested. Elmendorf Farm, Lexington, Ky., has the largest herd in America, consisting of over 100

of milk of any breed of cattle. At Chicago there was shown by Mr. Gould, a little cow that in 1910 at the Royal Show of England made $36\frac{1}{2}$ pounds of milk in a day, testing 3.65 per cent. fat. There are numerous instances of Keries and Dexters producing 20 to 22 quarts of milk a day. In the Gould herd a number of little Dexters have made from 5000 to over 8000 pounds of milk in a year, testing over 4 per cent.



DEXTER COW, SLANE CLARE,
Champion at Royal Show of England.

Courtesy American Kerry and Dexter Cattle Club.

head of the two breeds. Mr. G. M. Carnochan, of New York, has bred Keries for some years, and has a herd of about 40. Mr. Howard Gould, on his Castlegould Estate at Port Washington, N. Y., has a herd of about forty head. There are small herds in various sections, even as far west as California.

The question frequently asked me is, "How valuable will they become?" From what I can learn, individuals are among the most economical producers

fat. While for some time these little cattle will be looked upon perhaps as pets by most people, and as best suited for family cows, there is no doubt but what the future will see some interesting official developments in production, such as will commend them for more serious thought. The main purpose of the American Kerry and Dexter Cattle Club will be to keep a registry and transfer record, and to properly place the breeds before the public.

Producing Pure Milk

HARRY S. MESLOH

Dairy Inspector, Ohio Dairy and Food Department

THE Ohio Dairy and Food Department is charged not only with the enforcement of the laws enacted against the sale of adulterated foods, deleterious to health, or those entailing fraud, but also with those laws regulating sanitary conditions in the production and handling of foods.

Inferiority in goods may not only arise by the using of cheap ingredients in their manufacture and making them

greater, and the production and handling of milk and its products under clean and sanitary conditions is more and more important.

Consumers, as a rule, will pay a better price for the goods they know to be genuine, clean and wholesome. To obtain such products we must start with the cow and her surroundings.

The herd should be kept in perfect health, and all sickly cows removed



PRODUCING PURE MILK.

Courtesy Hartman Stock Farm.

appear as the genuine, (such as oleomargarine and renovated butter, if sold as butter), but may be conferred by their production under unclean, unhealthful, and unsanitary conditions.

As the production of milk is an act of producing food, its relation to the sanitary laws is obvious, and it is clearly shown that surroundings should be kept pure and clean.

As population increases the demand for high grade dairy products becomes

from the rest until cured. Each cow should be kept clean by carding and brushing daily, and the udder wiped with a damp cloth before milking. These measures are very important from a bacteriological point of view, as fine hairs, dandruff and dust falling into the milk while milking, will contaminate it, cause it to sour much more quickly and give rise to the spread of diseases. These fine particles, as can be imagined, can not be strained out. Milk is almost a

perfect soil for the growth of bacteria, and many diseases have been traced directly to the milk supply.

Ventilation and lighting of stables has an important bearing upon the health of the cows. It is urged that 500 cubic feet of air space per cow be arranged for in the construction of barns, and provision be made for, at least, one square foot of light for each four square feet of floor surface. It is equally important to keep the walls, ceilings and all interior wood work absolutely clean, and liberally whitewashed.

Floors should be constructed of impermeable material, thoroughly cleaned daily, and manure removed to a distance of at least 40 feet from the stables. The yards in some dairies are found to be improperly drained and cows are compelled to wade in deep mud and filth. This condition must be severely condemned. If the yard is too low, it should be filled up with earth or other suitable material. Accumulation of manure near the stables in wet weather also causes conditions wholly out of place where a food is produced or collected.

Another important item in caring for the herd is the water supply. Too often it is found that cows have no access to pure water, but are compelled to drink stagnant pond or creek water. In view of the fact that cow's milk naturally contains from 86 to 88 per cent. of water, it is very obvious that they need a plentiful supply, of the purest kind. They should have access to the watering place at any and all times, and the watering trough should, by frequent cleansings, be kept free from all dirt and foreign matter which commonly gain access.

As stated above, the keeping of the stables, yards and cows in a clean and sanitary condition is necessary to pro-

duce first class milk or cream. This, however, would be of no use, if the person who milks, is allowed to go dirty. If his hands are not washed before milking, and he wears dirty clothes, particles of dirt will find their way into the milk, contaminating it with all kinds of germs. The milk, also, should be handled and stored in a place for this purpose, namely a milk-house. Much milk and cream is tainted, after being collected sanitarily, by storing it in proximity to other material and food-stuffs, where it is exposed to all kinds of odors, thereby reducing its value to the ultimate consumer.

The results of many prosecutions of milk dealers and producers show that occasionally a herd gives milk below the legal standard. As this, however, is not a good defense against prosecution, it becomes necessary for the producer to raise the content of butter fat in such milk, safely over 3 per cent., as required by law. In no better way can this be accomplished than by testing each cow's milk, computing her production in pounds of butter fat, then weeding out the boarders. Thereby, the producer fulfills a duty to himself as well as a requirement of the law.

The careful producer of cream and butter aims to promote his own welfare by raising the standard of his product. Such procedure, if adopted by all, would lessen the hundreds of illicit sales of oleomargarine and renovated or process butter, offences amenable to law.

It is hoped that producers will continue the advancement made in the production of dairy products, and in this we lend our hearty support. Inspection of dairies has resulted in a large improvement of conditions in a sanitary way, as well as increased prestige of the producer with the general public.

Advanced Registry Work in Ohio

E. F. RINEHART

Assistant Professor of Dairying

NOTHING better shows the general recognition of the superior value of good stock than does the making of official records. Formerly many cattle were considered good merely because they had pedigrees or were of a desirable conformation. The large amount of advanced registry work now being done and the premium placed upon

ord may be very desirable, yet a record of this kind is no better than the word of her owner. When buying a horse, while we might be willing to take the owner's word for all the good qualities of the animal in question, we would much prefer to be shown. This illustrates the difference between a private and an official record. The offi-



OHIO'S CHAMPIONS.

Daisy Grace De Kol.

Spotswood Daisy Pearl.

those individuals of a good type and pedigree, that have proved beyond doubt that they are good producers, show that the wide awake farmer desires not only a well bred animal of good appearance but he must also have undisputed proof that she is a worker. It would be just as consistent to buy a horse without knowing anything of his gaits or his ability to work as to buy a cow that has no record of her production. For this purpose a private rec-

cial record of a cow is as good as the record of a horse made on the track, for it has back of it the sworn statement of disinterested parties.

While fairly old in the older dairy states, Advanced Registry work is comparatively new in Ohio. Since its beginning here, however, it has made very rapid strides. In 1907, nine Ohio cows were officially tested; in 1908, twenty-five; in 1909, one hundred and sixty-one; while in the year just completed

five hundred and ninety-five registered cattle were tested by representatives of the Agricultural College. From advance notices and applications it would appear that over a thousand official tests will be made during the present year.

At the present time there are two hundred and seventeen registered cattle in the yearly test. Of this number there are ninety-three Jerseys, fifty-eight Guernseys, thirty-eight Hols'eins, twenty-eight Ayrshires, and seven Brown Swiss.

The making of these tests and the accompanying reports, together with the numerous seven and thirty-day records constantly being made, require an enormous amount of work. For this purpose there is an available force of twenty-five testers, ready to leave at a day's notice. At the busiest season of last year there were thirty-one representatives of the Agricultural College in the field at one time. This does not include the office force that arranges for the tests, does the retesting, tests the composite samples sent in and makes the reports to the Registry Associations. Formerly this was done as a part of the Dairy Extension work, but owing to its present magnitude the Department of Dairying has been forced to carry it on as an independent line of work.

The interest and zeal of the numerous breeders carrying on this work are beginning to show results and are bringing Ohio rapidly to the front as a state where the best of dairy cattle are to be found. During the past year records have been completed that make Daisy Grace De Kol the world's champion ju-

nior four-year-old Holstein, and Maple Crest Pontiac Korndyke the world's champion senior two-year-old Holstein. A record completed November 7, 1911, makes Spotwood Daisy Pearl the champion Guernsey cow of the world, she having surpassed Dolly Dimple, the former champion, by 30 pounds of butter fat and 500 pounds of milk.

At the present time prospects for future work are very bright. Owing largely to the untiring efforts of the breeders of good stock, the agricultural press, the Experiment Station and the College of Agriculture, the scrub cow is rapidly losing ground. In many sections of the State only pure breds or good grades are to be found. Even in communities where but little attention has been paid to dairying in the past, registered herds are to be found and the value of a good pure bred sire is being recognized. Yet, unfortunately, the man to whom a cow is only a cow, still exists, therefore, the scrub cow is not threatened with immediate extinction. This statement is based upon the fact that while the herds under test have averaged from three hundred to four hundred and fifty pounds of butter in a year. The census returns show that the yearly yield of the average Ohio cow is still less than one hundred and sixty pounds of butter. Yet in spite of this the more optimistic are prophesying that ever the present century has rolled away the careless farmer and the scrub cow shall have ceased to exist and will live only in memory, as do the mound builders and the buffalo today. Perhaps they are right. Who can say?

The City Milk Problem

O. P. DILL, '12

AS time goes on, the problem of supplying milk to the large cities becomes more vital. Among the larger cities like New York and Chicago much of the milk must travel through the hot sun, for a larger part of the day, before it reaches the consumer. The consequences are that much of the milk is in a bad condition when it reaches the user. One of the most important problems of today, is to secure a clean, wholesome supply of milk for the cities. This is of greatest importance to every

men, whose duty is to see that the dairies supplying the city do so under sanitary conditions. This method is a very commendable one and has brought forth good results, expensive tho it be.

Some dairies produce a certified milk, and advertise it as a babies' food. This milk is produced under very sanitary conditions from good healthy cows. It must contain less than 10,000 bacteria per c.c. It commands a fancy price upon the market, hence its use by the people who really need it largely.



THE CITY MILK PROBLEM.

home, for there we find the infants who must feed upon it.

Statistics show that there are a large number of deaths, among the infants, in the large cities, due to bad milk. The percentage is much greater among the babies who are fed on cow's milk. This shows the necessity of producing a good quality of milk for city use.

Several different methods are being put into operation to secure a higher class of milk. Better regulation and inspection of the dairies that supply our cities with milk is commanding ever increasing attention at the present time. In the larger cities, there is a corps of

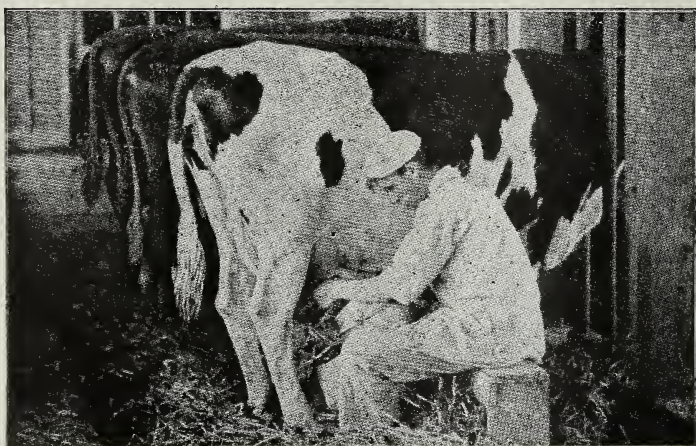
Within the past few years pasteurizing milk has received a great deal of attention. By this method practically sterile milk is produced. The milk is heated to 140 or 160 degrees and held there for a period, varying inversely as the temperature, from 10 minutes to 1 hour. Practically all bacteria are destroyed, and the milk is rendered practically sterile. The spores, however, remain intact, as they are capable of effectively resisting high temperatures. To kill these spores we must heat the milk to a temperature above that of boiling for about a half hour. The time, however, varies with the temperature.

Within the past 10 years evaporated milk, commonly known as condensed milk, has come into prominence. It has been on the market for at least 25 years. Only within the past decade has the business been exploited extensively. A sterile product, that can be shipped anywhere and still be in good condition, is thus produced. The process itself insures the consumer a sterile product. In the first place, the milk must be delivered to the factory in a satis-

are using immense quantities of it.

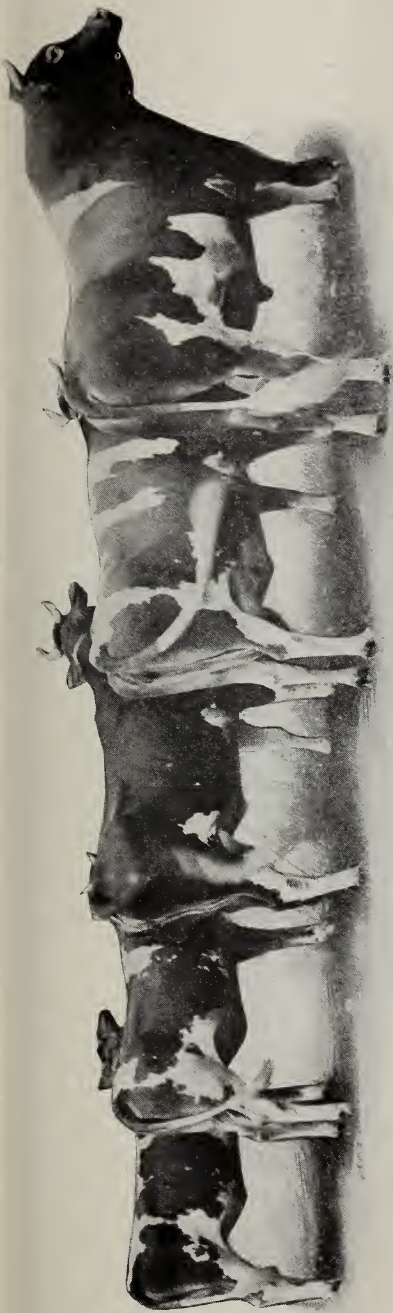
This is probably one of the safest milks for use in the large cities because, first, the people are assured of a sterile product; second, the price of the product is not prohibitive to the poorer classes; third, an unopened can of milk can be kept an indefinite period without fear of spoiling; fourth, city officials have fewer plants to control.

The city milk problem is a life-study unto itself. In it we find interwoven,

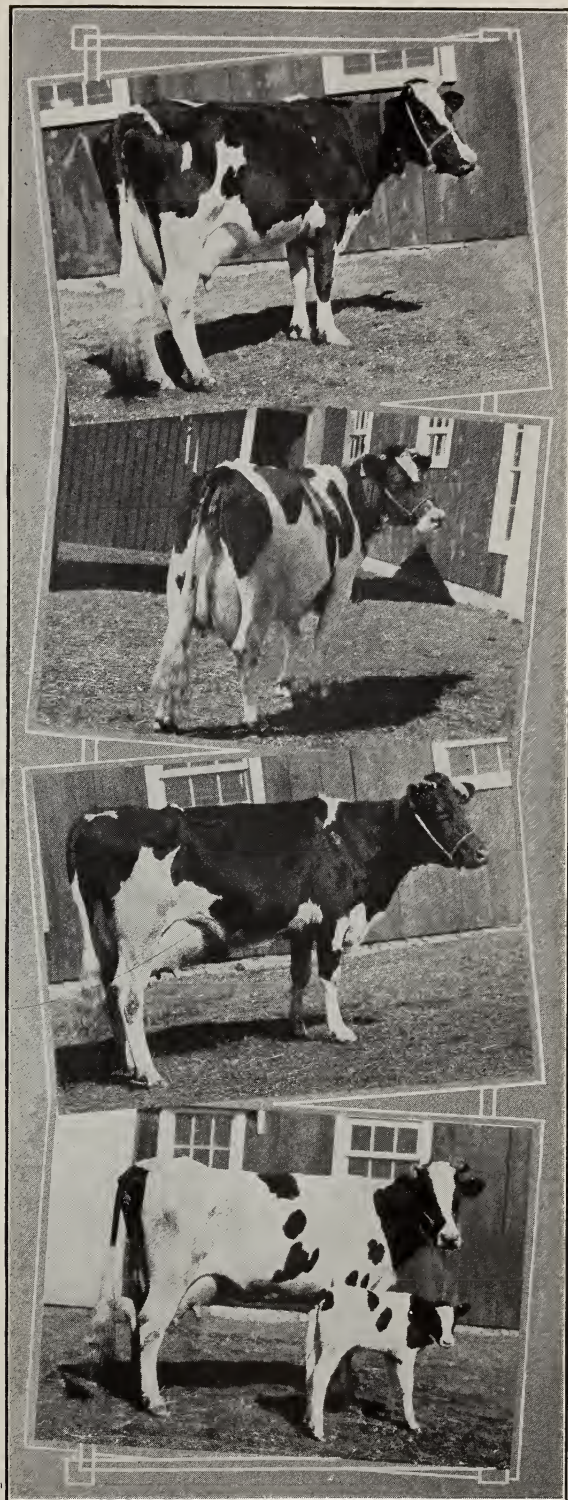


factory condition. The dairymen must comply with the company's rules, as to feeding the cows, cooling the milk, caring for it, and as to the sanitation of their stables. After the milk is delivered to the factory, part of the water is extracted in a vacuum pan. The milk is then placed in cans, sealed, and sterilized. The process of sterilization destroys all bacteria and spores, and gives a product that is absolutely safe for consumption. The people of large cities are taking advantage of these facts and

problems not only of economy of production, but problems of ethics, morality, public health, civic righteousness. Of these the modern dairyman must have some conception if he rise to the top of his profession. As his brother's keeper, he must be a broad, deep student of men and affairs and of scientific agriculture. The field for progress is broad, broad indeed. It is up to us to so fit ourselves, as examples of progressive dairymen, to fill our niche, intelligently and acceptably.



Courtesy A. W. & F. E. Fox.



Courtesy T. H. Russell.

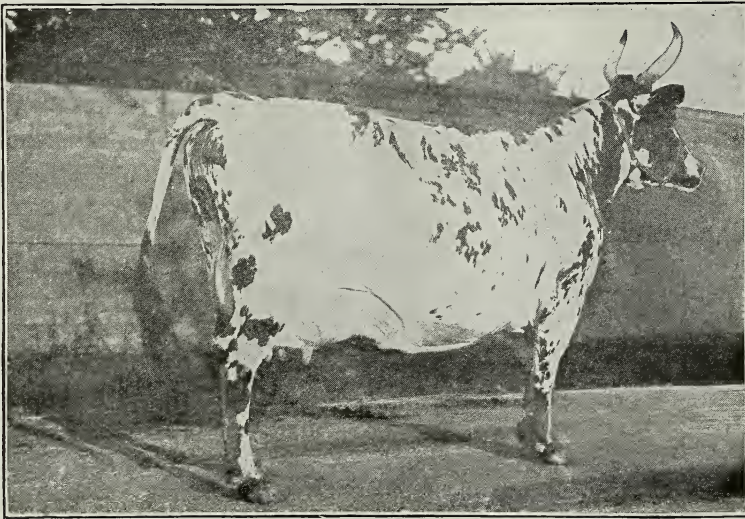
The National Dairy Show

V. A. PLACE, '12

The recent National Dairy Show held at Chicago, Oct. 26-Nov. 4, gives abundant evidence of the fact that the dairy cow is one of the greatest factors in our modern agriculture. Housed in new quarters at the home of the International Live Stock Exposition, this greatest of world's dairy shows is assuming its correct proportions.

There were 1,183 entries of cattle, the breeds including Ayrshires, 177; Brown

of milk and its various products in the most sanitary and economical way. The silo, the sanitary stable with its many modifications from floor to roof, the creamery with its separators, bottles and bottlers, vats, condensers, coolers and churns, they were there in modern style. The machinery and utensil side of this show alone were features of great interest, not to mention the many other attractions.



AYRSHIRE TYPE.

Swiss, 155; Dexters, 23; Dutch Belted, 26; Guernseys, 310; Holsteins, 285; and Jerseys, 247. The outstanding individuals of all of these breeds were present, their value and performance being bulletined upon special exhibition stalls at either end of the immense arena. Both in quantity and quality, the dairy cattle exhibit totally eclipsed any previous show ever held in the world.

The exhibition of dairy machinery and implements showed every up-to-date device imaginable for the handling

Among the special features that were introduced at night to attract crowds and keep them interested were the magnificent parades of the dairy herds, the milking contests, basket ball games, ponies in harness, and the frolic of the calves. Each evening at ten o'clock the calves from the different herds were brought into the arena and turned loose to have their evening frolic. It was a side-splitting sight to see these coming prize winners gayly chasing about, releasing some of their pent up

energy, resulting from being tied up all day long and receiving, just before the frolic, a belly full of milk, streaming warm, from the high class udders of their famous mothers.

At one end of the arena in special stalls some of the great individuals of the different breeds were exhibited. Here the famous Dolly Dimple, the noted Guernsey cow: Noble of Oaklands of Elmendorf fame, and his dam, Lady

of shape and size that are really remarkable, and some very high records are held by some of these cows.

The breed shows were wonderful revelations of the mastery of the breeder's art—Jersey, Guernsey, Ayrshire, Holstein, all. Space prohibits a detailed report here. No dairyman should miss this exhibit or its lessons.

Now, as to Ohio State and her connection with this greatest of cattle shows.



Courtesy T. H. Russell.

Viola; "Peter Pan," in many respects the leading Ayrshire bull in the world; the White House Cow, etc., could be seen in their best form. At the opposite end of the arena was an exhibit of a breed which is not so well known in point of numbers in this country, but which is to be classed as a strictly dairy breed. These were the Dexters, the diminutive black breed from Ireland. In size the animals of this breed occupy a place in the bovine world comparable to the Shetland in the equine. Although they are very small, they possess udders

The Students' Judging contest is a part of the show that is rapidly growing and it must continue to do so as long as such liberal rewards as are now available for effort and brains are continued. Although but the fourth contest in connection with the show, it was a success from every standpoint. The competition for the different scholarships, cups and individual trophies was well worth while, not to mention the educational benefits of the contest—a thing for which it is primarily intended. Ten teams, representing as many Agri-

cultural Colleges, participated in the contest which began at 8:30 A. M. and ended at 5:30 P. M. on the 27th. Four breeds were judges—Ayrshire, Guernsey, Holstein-Friesian, and Jersey. There were two rings of four head each from each of the above breeds, one ring of aged cows and one ring of aged bulls. Before the contest began the thirty students were divided into four groups and each group put in charge of an attendant whose duty it was to keep the group from discussing the animals or communicating in any way whatever with anyone.

Each student was given a number and he worked under that designation throughout the contest. Each man was given fifteen minutes to place a ring and then the group was taken to a room where another fifteen minutes was allowed for writing the reasons for the placings made. The results for the contest were announced on Saturday night in the arena in the presence of the various teams, their instructors and men prominently connected with the National Dairy Show. The three highest ranking teams on each breed were as follows:

Ayrshires:

1. Maryland Agricultural College.
2. South Dakota Agricultural College.
3. University of Missouri.

Guernsey:

1. Kentucky State University.
2. University of Nebraska.
3. **Ohio State University.**

Holsteins:

1. Kentucky State University.
2. Kansas Agricultural College.
3. Iowa State College.

Jerseys:

1. Maryland Agricultural College.
2. **Ohio State University.**
3. Kentucky State University.

The ranking of each team taken on a basis of total points was as follows:

1. Kentucky State University.
2. **Ohio State University.**
3. So. Dakota Agricultural College.
4. University of Nebraska.
5. Maryland Agricultural College.
6. Kansas Agricultural College.
7. Iowa State College.
8. University of Missouri.
9. Delaware Agricultural College.
10. N. Y. State College of Agriculture.

It is a singular fact that Ohio State ranked second of the ten colleges, was second on Jerseys and lacked but one point of being second on Guernseys, and yet not a single trophy was won, while other colleges comparatively low in total points, but happening to be high on some one breed or with an individual in the team that made a high score, won trophies all around us. Such is the irony of fate!

The sweepstakes cup, offered by the National Dairy Show Association, went to Kentucky. Another silver cup, offered by "Hoard's Dairyman," was won by this team, while they took along the Guernsey cup and the one offered by the Holstein-Friesian Association of America. Maryland, ranking fifth in total points, was high on Jerseys and was awarded the silver cup offered by the American Jersey Cattle Club.

The individual prizes were divided as follows: Russell Jensen, of South Dakota, had the highest individual score and won the \$400 scholarship offered by the Blue Valley Creamery Company, together with the Taft trophy and \$50 in money. Mr. Jensen was also the high man on Holsteins, but the \$400 scholarship offered by the Holstein Association was awarded to the next best man on that breed, Mr. K. B. Musser, of the Kansas team. The Jersey scholarship

of the same value went to A. C. Stanton, of Maryland.

To have Ohio State rank second in a contest of this kind is not a satisfactory rating when opportunities are so good for the study of the various dairy breeds within our own State, home of champions, and where the dairy industry is so rapidly advancing. With the prizes that are available, why should not the Dairy team be placed on an equal basis with the International team and strenuous training be given for it? It is the unanimous opinion of the members of the team this year that they lacked in amount of training. What was had was excellent, but there was scarcely enough of it. Probably one reason for the students' apparent lack of interest taken in this work is that the Dairy Show is but a recent child of great men's brains as compared with the International, but it seems to me that this should only be an argument for the boosting of this team while there is plenty of chance to get some good work. As the years pass this contest will become harder. Good work

now will be an inspiration to those who come later. The students interested in dairying will make no mistake to arrange early in their course to get the work in Dairy Cattle and with some competition which will naturally come from this work, the best men may be relied upon for this team and the honor of "State."

There could be no single factor that would do more to make a strong team than plenty of competition among the students in Animal Husbandry. Strong competition and more training will do much toward sending **the winning team** to the National Dairy Show next year.

In the coaching this year, Prof. Plumb was assisted by Mr. F. W. Bell, Ohio State '12, a Cornell graduate, who was a member of the winning team last year and whose faithful and untiring efforts with the team this fall were highly appreciated by each and every man on it. To Prof. Plumb and his worthy assistant belongs what of honor may have accrued, but next year we want them to come back with the premier laurels of the show. Ohio State Spirit, to the rescue!



Courtesy Ayrshire Breeders' Association.



OF

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COLUMBUS, OHIO, NOVEMBER, 1911.

Editorial

Foster mother of the human race is she; grandest, noblest brute of them all. From Plymouth Rock to the land where **THE DAIRY COW** the Pacific laps our western shore, has she accompanied the American march of civilization. Unfailing friend, producer of a myriad things which man's wants now describe as necessities, what would we do without her? Food, or wearing apparel, or motive power, as man wills does she produce. Great conservator of fertility, mighty economic force in converting the raw product into the most perfect of human foods, could we treat thee unkindly? No, we desire to honor our servant and our friend. We want to further use her, to improve her race, to make her of still more value as an economic force.

Should it lead to a much more kindly treatment of her, to a greater appreci-

ation of her sterling worth to Ohio's agriculture and to a further utilization in advancing it, we shall be supremely happy in dedicating this issue to the Queen of our domestic animals — The Dairy Cow.

¶ ¶ ¶

We are gratified indeed, in acknowledging the co-operative spirit, without which this

ACKNOWLEDGMENTS. issue could not have

been presented. To Ex-Gov. Hoard, to Inspector Mesloh, to our own professors, and to our fellow students, who have so ably contributed to the subject matter of this issue, we are greatly beholden.

For many of the illustrations which illuminate these pages we are very happy in avowing the co-operation of such fine forces in the dairy industry as, Mr. T. H. Russell, the Holstein-Friesian

breeder of Geneva, O.; Messrs. Fox, the Guernsey breeders of Waukesha, Wis.; The Hartman Stock Farm, The Ayrshire Breeders' Association, The Holstein-Friesian Register, The American Dexter and Kerry Cattle Club, and The Columbus Citizen.

¶ ¶ ¶

Judging of Dairy Cattle at Ohio State should come in for more attention—by the students. Here we have some of the highest authorities in Dairy Husbandry in America, and yet the call is made for candidates for the dairy team, and the response is by no means general enough. Trophies, scholarships, assurance of a square deal, and best of all, the invaluable training involved, should bring out a host of men for this event. Now is the time to begin! Manifest your desires to see and help Ohio win first place next year, do it now, read what Mr. Place has to say on the matter, start it now, and the training furnished you will be second to none in the country. This, and this alone, will insure the results.

¶ ¶ ¶

Ohio State must be well represented at the next International Live Stock Exposition, especially so, since Ohio State students are to have charge of the entertainment of the American Association of Agricultural College students. It must be the best yet, for Ohio leads always.

Here at Chicago, on Dec. 2nd to 9th, will be assembled the world's greatest show of live stock. Here the animals, the breeders, the scenes of world-wide fame and moment. The University of Live Stock Achievement, if a husbandman, you cannot, must not afford to miss

it. Then 'tis Ho! for the International, and don't forget to take along the hal-lowed colors of the Scarlet and Gray.

¶ ¶ ¶

All hand to the oars now, and help get that sadly needed building for the Horticultural Department. No need is as great, no appeal so worthy. The mighty horticultural interests of our state must be properly cared for at our University. The man equipment is un-celled, the building—well nigh nil. If you really want that building intensely, it will come. Every thinking ruralist in Ohio is urging the fulfillment of the need, and we can do a mighty work in voicing it.

¶ ¶ ¶

"The Wise Farmer" is the slogan of the next winter course, to be the largest and best Ohio State ever had. **WINTER COURSE, BOOST IT!**

As bonafide students and boosters in the mighty Buckeye Institution for the Promotion of Rural Welfare, it is your duty, Gentlemen of the Agricultural college, to help forward the Winter Course, for it means, among its chiefest results, more prestige and added strength for the Ohio College of Agriculture. Have you sent your quota of post cards? Have you advertised your Alma Mater every time a chance was presented? Sure? Good! Keep up the spirit, augment the boosting, and soon Ohio State stands at the head of the line of the world's Agricultural Colleges!

¶ ¶ ¶

Seven dollars the round trip is the price. Hand your name to Prof. Plumb at once and get a free pass to the great International Live Stock Show.

November is leaving us in manner auspicious and happy—leaving us with that day so full of good cheer and gladness and gratitude. Nature has divested herself of her bright, gay colored garments, inviting and leading us to think soberly and clearly of our debts to the Giver of Good. The harvest is o'er, the grain is safely garnered, our beasts are sheltered, all the countryside is at peace, comfortable, happy—thankful. For one day at least we can forget petty difficulties and lift up our voices in thanks sincere to The Author and Finisher of Our Faith, The Giver of Every Good and Perfect Gift. Dwellers in a mighty commonwealth of happy homes, in Ohio, peerless Ohio,

subject to benefits and bounties, which but a few decades ago were undreamed of, should we not give over one day to an expression of our sincere gratitude, thanks that we are entrusted with the sacred stewardship of life, liberty, and worldly goods? Truly it must be a real Thanksgiving.

¶ ¶ ¶

What is the greatest bliss
That tongue of man can name?
'Tis to woo a bonnie lassie
When the kye come hame,
When the kye come hame,
When the kye come hame,
'Tween the gloamin' an' the mirk,
When the kye come hame."
—James Hogg.

IN MEMORIAM.

To the Relatives and Friends of Charles E. White:

It is with the deepest regret that we learn of the death of Mr. White. He was always held in the highest esteem by all who knew him and we feel that his College and classmates have sustained a great loss.

Please accept our sympathy in your recent bereavement.

Yours sincerely,

COLLEGE OF AGRICULTURE,
OHIO STATE UNIVERSITY.

(Signed by Students and Faculty.)

Charles E. White died of lockjaw, Tuesday, Oct. 17, caused by an injury to his finger received in a feed grinding machine at the University barns. For one week after receiving the injury, White attended all of his classes. He

became aware of his condition while at home the following Sunday and hurried back to Columbus to Grant Hospital. He lost consciousness soon after his arrival. Death ensued the following Tuesday.

Mr. White was a Junior in the College of Agriculture. His brother, Roy, is a Senior in the same college. His parents live on a large farm near Derby, and funeral services were held at the home on Friday, October 20. B. A. Schnell, Ernest Oliver, E. O. Williams and E. T. Kirkendall, Ohio State student, were pallbearers.

As a tribute to their fellow student, the undergraduates of the College of Agriculture sent a floral wreath and resolutions to the family. George Crane and Byron Lukens were present as representatives of the student body.



NEWS NOTES



EDUCATORS MEET.

The twenty-fifth annual convention of the Association of American Agricultural Colleges and Experiment Stations was held at Ohio State University, Nov. 15, 16 and 17. The sessions were held in the Ohio Union and Townshend Hall. Able addresses were given by Professor Hays, Asst. Secretary of Agriculture; Philander P. Claxton, United States Commissioner of Education; N. Kaumanns, Imperial German Commissioner of Agriculture to the United States; W. J. Spillman, Washington, D. C.; W. H. Jordan, of New York; Eugene Davenport, of Illinois; W. E. Stone, of Indiana; T. F. Hunt, of Pennsylvania; Alfred Vivian, of Ohio State, with discussions by other noted men.

Other conventions held in Columbus the same week were:

The American Society of Agronomy, Nov. 13-14.

Ohio State Grange, Nov. 13-14.

American Association for the Advancement of Agricultural Teaching, Nov. 14.

Society for the Promotion of Agricultural Science, Nov. 14.

American Association of Farmers' Institute Workers, Nov. 13 to 15.

Society of Animal Nutrition, Nov. 13-14.

Farm Management Association, Nov. 14-15.

Association of Official Seed Analysts, Nov. 17-18.

National Grange, Nov. 15 to 17.

Thus was our University honored by the presence of the country's most famous men in agricultural education and promotion.

OHIO CORN SHOW.

The fourth Ohio Corn Show will be held at Springfield, Ohio, January 17, 18 and 19, 1912. Five hundred dollars and eight cups will be given in prizes. The Ohio Corn Improvement Association meets Jan. 18 and 19. Corn Banquet, Thursday, Jan. 19. Entries close on Monday, Jan. 15, at 10 A. M. For premium list, etc., address D. W. Galehouse, Secretary Ohio Corn Improvement Association, Wooster, Ohio.

The new Poultry Department, for which the last legislature made an appropriation, will be in working order at the beginning of next semester, if possible. Mr. F. S. Jacoby, a graduate of Cornell University, who has been secured as instructor, is now working on the plans for the new plant, which is to be built west of Neil avenue. Mr. Jacoby received his degree in 1909 and spent the following year teaching at the Kansas Agricultural College. Since then he has been in charge of a New Mexico dairy and poultry farm, which he left to take up his present position at Ohio State.

The Dairy Department has again found it necessary to increase the instructional corps. This time it is in the able personage of Prof. E. F. Rinehart, Ohio State '10, who has been transferred from the Extension Department. Mr. A. S. Neale will occupy the position left vacant by Prof. Rinehart.

Mr. John Chisholm, Farm Superintendent, will soon sever his connection with the University to become manager of one of the largest farms in Ohio.

FIRST ANNUAL APPLE SHOW.

"What did you say would take place the 7th and 8th of December in Townshend Hall?"

"Why, an exhibit of **Apples, Apples**, (Pyrus Molus), yes, Apples!!"

"Are you going to exhibit?"

"Well, I guess yes; look what they are going to offer."

"I have premium No. 4 for a plate of Ben Davis cinched."

Such is the talk among the environs of the big college of the State University.

The first annual Apple Show under the auspices of the Ohio State University Horticultural Society will be held in Townshend Hall on Dec. 7 and 8. The program is as follows:—

Features of the Show:

Free admission.

Prize Fruit Exhibit.

Vegetable Exhibit.

Cider Booth.

Apple Packing.

Students' Apple Judging Contest, Dec. 7th, at 4 P. M.

Auction of Prize Fruit, Dec. 8th, at 4 P. M.

Rules and Regulations of the Show:

Any Agricultural Student may compete for prizes.

All fruit which is to be entered as a variety, in the variety contest, must pass inspection.

All fruit exhibited to become the property of the Horticulture Department.

Only members of the Horticulture Society can enter the apple judging contest. (Hint: Better join next meeting.)

The name of the winner to be engraved on the Silver Loving Cup, to remain the property of the Society.

For the second highest score, one year's subscription to the Garden Magazine.

All entries must bear name of exhibitor, name of variety, and what premium number it is entered under.

All entries must reach Townshend Hall on or before Dec. 5, 1911.

Note: Be sure your fruit is free from fungous diseases, insect attacks or other blemishes. Seek uniformity in size and shape and evenness of color. See that your fruit has stems.

For further information apply to one of the committee in charge: L. E. Melchers, Chairman; C. B. Durham, A. J. Burns.

"Come, ye faithful Ags.," get into the game; we want the rest of the Colleges "to sit up and take notice."

JUDGING TEAM.

The live stock judging team has been announced as follows: Orville A. Jamison, Virgil A. Place, T. Edwin McLaughlin, Francis C. Marshall, and Samuel R. Guard. The team has been entered in the "International Contest."

Professor Firman E. Bear gave a most vivid and interesting account of a part of his European travels before the Agricultural Society at its November meeting. One is missing a great deal when he misses these meetings.

DAIRY TEAM.

In the Students' Judging Contest at the recent National Dairy Show, the team from the Ohio State University won second place with a score of 3675½ points out of a possible of 4800. The men composing the team from Ohio were Lewis L. Heller, S. R. Guard and V. A. Place, three Senior students in Agriculture.

H. R. Watts, '10, is doing research work in the Chinch Bug investigations in Kansas for the U. S. Dept. of Agriculture.

"THE BATTLE OF THE KERNELS."

"Corn is King," say the boys of the College of Agriculture and accordingly are they making stupendous preparations to do fit and proper homage, not only to King Corn but to all the grains of Ohio, at the first annual **Corn and Grain Show**, to be held in Townshend Hall, Jan. 11-12, 1912.

'Tis the "Battle of The Kernels," and a battle royal it promises to be, where we find students from every one of the 88 counties, from smallest to largest, preparing ardently to take back the coveted prizes to their respective counties. The classification is large, the premiums are to be most liberal.

The chief executive of the state has taken note of the affair and generously offers the "Governor Harmon Medal for Sweepstakes in Corn, Ohio Agricultural Students' Grain Show, 1912." It is to become the property of the student winning it.

Any student of the Agricultural College may compete in all the various classes. The samples of corn and grain exhibited must be representative of the county in which the exhibitor resides. The winning samples are to be entered in the Ohio Corn Show at Springfield, and should take premier honors there.

The judging is to be done by authorities of national reputation, from without the pale of the University.

The banquet on the evening of Jan. 12th is to be the "cap sheaf" in the grain show and already reservations are being made lest some of our students be left out due to inadequacy of our largest banquet hall.

The preliminary announcements have already been distributed broadcast over the campus; if you haven't yours, **inquire** about "**The Battle of the Kernels**" from any of the members of the Class in Agronomy, 109, "Seeds and

Market Grains," who under the guidance of Prof. Livingston, have the affair in hand. The premium list in detail is promised later. Requests for detailed information and entries should be addressed to C. S. Wheeler, Secty.-Treas., or to J. C. Hedge, Asst. Secty.-Treas.

Yellow corn, white corn, red corn, pop corn, wheat, oats, barley, good-will, all, are to command premiums. Get your share!

"OHIO STATE STOCK" TAKES A BOOM!

A state-wide celebration among alumni, former students, and undergraduate of the Ohio State University is announced for Friday, December 1st. On this date groups of "Ohio State" men and women, young and old, will assemble simultaneously in every county and every large city in the state to pledge anew fealty to Alma Mater, to sing the songs, to rouse the old-time college enthusiasm, and to send the wahoos ringing. Many "Ohio State" organizations outside the state will also hold meetings on this date. Every county is to be organized for this Thanksgiving jollification, each with its own local corps of workers. Programs of entertainment will vary of course, but loyalty to "Ohio State" will be the same everywhere. At exactly 8 o'clock, 8:30 and 9, and at every succeeding half hour thereafter during the evening, every jollifying group will yell the same yell, sing the same song, and take the same oath of allegiance. With the ingenuity of the loyal graduates and ex-students at work on plans for this general jollification, and the breezy spirit of the undergraduates to keep things moving, a loud huzza for Alma Mater will sweep from one end of Ohio to the other and back again.

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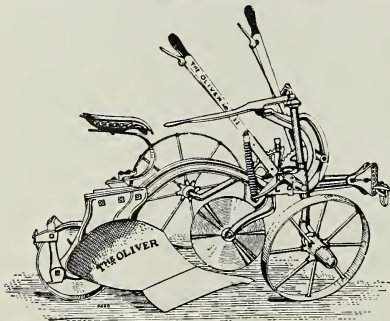
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And he was wondrous wise;
He knew to get the "State" boys' trade
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It's patronage that those boys want,
Said this man of active brain;
A little money spent with them
Will bring me back great gain.

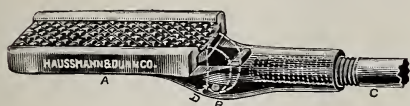
But it's clearly wrong to turn them
down
And then expect their trade;
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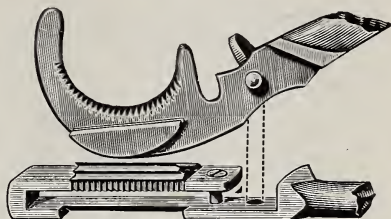
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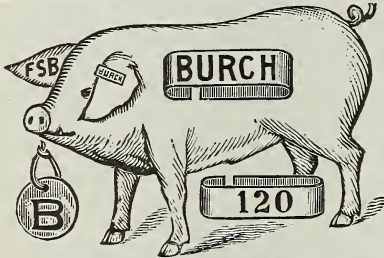
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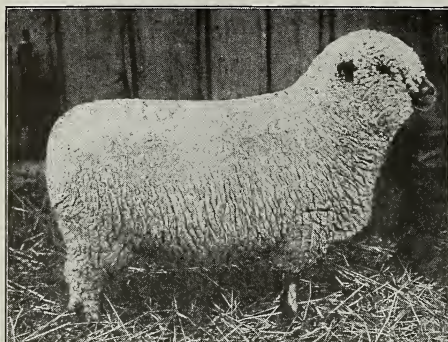


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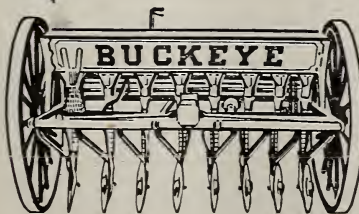
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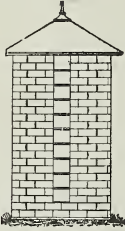


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Will be saved this winter to the users of **INDIANA SILOS**. There is another winter coming. 15,000 silos in use our best salesmen. We are the largest manufacturers of silos in the world. Licensed under Harder patent No. 627732.

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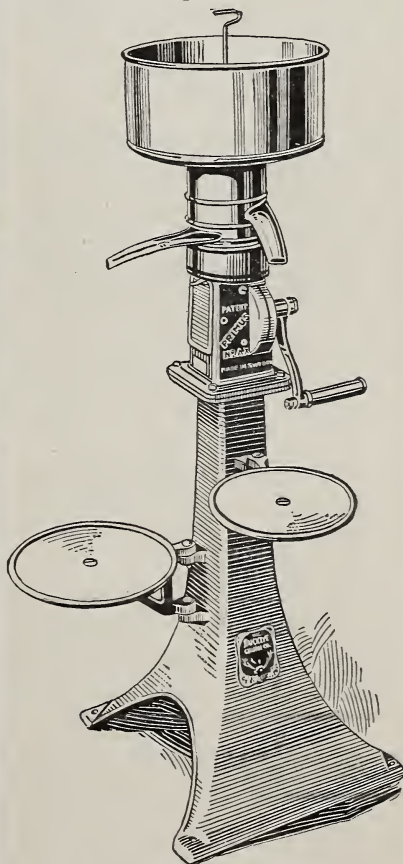
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THE PRIMUS CREAM SEPARATOR

stands first because it saves those weary hours of cleaning.

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Fellow Students, let us show our appreciation not only by giving these firms our trade, but by boosting them to our friends. A thousand students here in school ought to be a class that any firm would be glad to get their goods before. Look over this list of advertisers and do your business with them, at the same time mentioning your connection with "The Student."

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Headquarters for

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Headquarters for "Ohio State" Boys.

STRICTLY HOME COOKING.
FAMOUS PORK SANDWICH.
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DRUGS,
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We are always pleased to do business
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TWO PROMINENT INSTITUTIONS of learning: O. S. U. for training and developing the mind; Howald's for training and developing an artistic taste in beautifying the home.

We cordially invite you in and look over our line of Furniture, Rugs and Draperies.

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The Best and Most Convenient Barber Shop for
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The same old stand
refitted and remodeled.

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Just What You Are Looking For:
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Give Us a Trial—Sure to Please.

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FINE LINE
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Special Attention given
to Clubs and Fraternities

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Our Telephones: Citiz. 4253; Bell, N. 1223.

Our goods are the best and always fresh.

Our prices? You can't beat them, quality considered.

We are never in dispute with customer about their accounts.

"Honesty brings Confidence."

"Confidence brings Business."

"Business brings Appreciation."

Thank you,
AARON HIGGINS.

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Always Find Our

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STRICTLY FIRST CLASS

ABERNATHY BROS.

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Kodaks, Drugs, College
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The "So-Different" Tailory

WE DO PRESSING.

High St. at Tenth Ave.

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National Indoor Games

"For the Student."

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To Those Who Neglected to Learn to Dance

Prof. W. J. Rader's Academies of Dancing

*will organize beginners' classes as follows:***HIGH ST. ACADEMY,**

199½ S. High St. Phones: Auto 3456; Bell 5877.

Will organize a beginners' class Wednesday evening, November 15th, 7:30 o'clock.

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Will organize a beginners' class Friday evening, November 17th, 7:30 o'clock.

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The Academy has been rearranged for functions of all sizes and is complete in every respect.

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Gentlemen, per term of 10 lessons..... \$4 00

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Private lessons can be had afternoons or evenings

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The Randall Orchestra

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STUDENTS WILL RECEIVE A CORDIAL WELCOME AT

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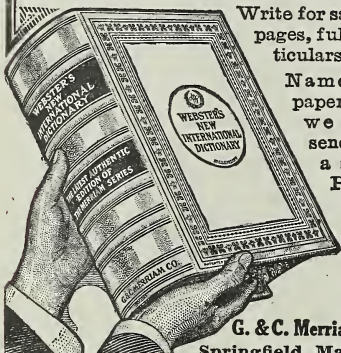
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THE MERRIAM WEBSTER
 The *Only New* unabridged dictionary in many years.
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We remove the spots, put on buttons and sew up rips on all suits pressed.

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 Phone us.

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 SPECIAL RATES TO STUDENTS

We Frame Pictures of all kinds — RIGHT

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HATS, . . . \$2.00

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HAS SPECIAL CARE,

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MEANS QUALITY

Our Standard and Guarantee is positively $12\frac{1}{2}\%$ phosphorus

We will furnish **higher grades**, if desired.

Fine and uniform grinding make our Phosphate Rock valuable.

PROMPT DELIVERY DIRECT FROM OUR OWN MINES TO YOU.

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Manufacturers of

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12, 14, 16 and 18 Per Cent.

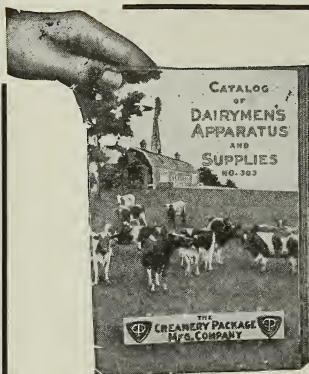
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*"The Hoosier is still
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Ask the farmer who bought a Hoosier Drill 25 or 30 years ago and who has recently purchased a new Hoosier and he will not hesitate to tell you there is no better grain drill on earth. The Hoosier was up-to-date 50 years ago and it is up-to-date now. Every size. All styles. You can always get what you want in the Hoosier line. Send for the Hoosier Catalogue. Call on your dealer and insist on having a Hoosier Drill.

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We manufacture equipment for every kind or size of dairy plant and equip more modern plants than all other concerns combined.

The catalog is free to everyone who asks for it. In writing, please state what machines or line of dairying you are most interested in. Address

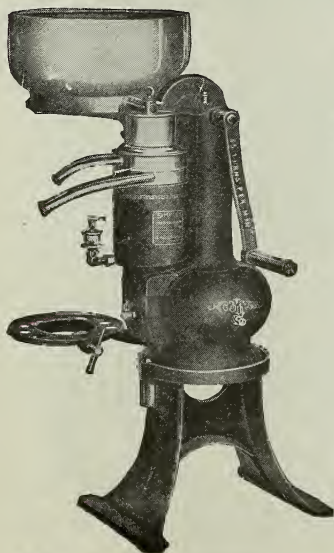
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LIGHTEST RUNNING.

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